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EXAMINER

BAKER, MAURIE GARCIA

ART UNIT

PAPER NUMBER

1639

DATE MAILED: 12/17/2002

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 09/922,426	Applicant(s) Trulson et al
Examiner Maurie G. Baker, Ph.D.	Art Unit 1639



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ONE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle* 35 C.D. 11; 453 O.G. 213.

4) Claim(s) 1-79 is/are pending in the application. _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) _____ is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims 1-79 are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____

2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) Other: _____

DETAILED ACTION

Please Note: In an effort to enhance communication with our customers and reduce processing time, Group 1639 is running a Fax Response Pilot for Written Restriction Requirements. A dedicated Fax machine is in place to receive your responses. The Fax number is 703-308-4315. A Fax cover sheet is attached to this Office Action for your convenience. We encourage your participation in this Pilot program. Thank you in advance for allowing us to enhance our customer service. Please limit the use of this dedicated Fax number to responses to Written Restrictions.

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-8, drawn to a method for removing a protective group from a synthesis intermediate, classified variously, for example, class 564, subclass 479.
 - II. Claims 9-16, drawn to a method for synthesizing polymers of diverse sequences, classified variously, for example, class 530, subclass 335.
 - III. Claims 17-25, drawn to an apparatus for solid phase chemical synthesis, classified variously, for example, class 435, subclass 283.1.
 - IV. Claims 26-32, drawn to a method for hybridizing nucleic acid, classified variously, for example, class 536, subclass 25.31.
 - V. Claim 33, drawn to a method for synthesizing a polymer array on a substrate, classified variously, for example, class 435, DIG 39 or 49.
 - VI. Claims 34-36, drawn to a second method for hybridizing nucleic acid, classified variously, for example, class 536, subclass 25.31.
 - VII. Claims 37 and 40-45, drawn to a method for removing a photosensitive protective group from a synthesis intermediate, classified variously, for example, class 436, subclass 35.

- VIII. Claims 38-45, drawn to a second method for removing a photosensitive protective group from a synthesis intermediate, classified variously, for example, class 436, subclass 35.
- IX. Claims 46 and 50-55, drawn to a second method for synthesizing polymers of diverse sequences, classified variously, for example, class 530, subclass 335.
- X. Claims 47-55, drawn to a third method for synthesizing polymers of diverse sequences, classified variously, for example, class 530, subclass 335.
- XI. Claims 56 and 60-65, drawn to a second method for synthesizing a polymer array on a substrate, classified variously, for example, class 435, DIG 39 or 49.
- XII. Claims 57-65, drawn to a third method for synthesizing a polymer array on a substrate, classified variously, for example, class 435, DIG 39 or 49.
- XIII. Claim 66, drawn to a third method for removing a photosensitive protective group from a synthesis intermediate, classified variously, for example, class 436, subclass 35.
- XIV. Claim 67, drawn to a fourth method for removing a photosensitive protective group from a synthesis intermediate, classified variously, for example, class 436, subclass 35.
- XV. Claims 68 and 69, drawn to a second method for removing a protective group from a synthesis intermediate, classified variously, for example, class 564, subclass 479.
- XVI. Claims 70-77, drawn to a third method for removing a protective group from a synthesis intermediate, classified variously, for example, class 564, subclass 479.
- XVII. Claims 78 and 79, drawn to a fourth method for removing a protective group from a synthesis intermediate, classified variously, for example, class 564, subclass 479.

- 2. The inventions are distinct, each from the other because of the following reasons:

3. First, it is noted that claim 17 is incomplete, ending in the word "and". In as much as the claim can be understood, it appears that Group II is related to Group III as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus of Group III could be used to practice the process of making compounds other than polymers (i.e. small molecule organic compounds).

4. Groups I, II, and IV – XVII are different methods. The methods are different because they use different steps, require different reagents and/or will produce different results. They therefore have different issues regarding patentability and enablement and represent patentably distinct subject matter. This is described in detail below.

5. In the instant case, each of the methods are different from the others because a they have different steps and/or different end results and/or require different reagents.

- Groups I, XV, XVI and XVII are methods for removing a protective group from a synthesis intermediate
- Groups II, IX and X are methods for synthesizing polymers of diverse sequences
- Groups IV and VI are methods for hybridizing nucleic acid
- Groups V, XI and XII are methods for synthesizing a polymer array on a substrate; and
- Groups VII, VIII, XIII and XIV are methods for removing a photosensitive protective group from a synthesis intermediate.

Each of these represents a *different end result* of the method and requires different steps in its practice. Within each of the sub-groupings set forth above, the methods are different because they have *different steps and/or require different reagents*. This is further elaborated upon for each sub-grouping below.

6. For Groups I, XV, XVI and XVII: Group I requires a photosensitive compound that produces a catalyst, an autocatalytic compound and a compounds capable of introducing latency; Group XV requires a CEM, a photosensitive compound that produces a catalyst and an autocatalytic compound; Group XVI requires a CEM that has a non linear response to light and also generates acid and an autocatalytic compound; and Group XVII only requires a photosensitive compound that generates a protecting group removing product.

7. For Groups II, IX and X: Group II requires a layer with a photosensitive compound that produces a catalyst and an autocatalytic compound and deposits other layers of the same composition later in the method; Group IX requires coating a surface with a photobleachable compound and recoating the surface with the same composition later in the method; and Group X requires coating a surface with a photobleachable compound and additionally requires a second surface comprising a photobleachable compound and further stripping and recoating and/or third surface.

8. For Groups IV and VI: Group IV requires a photosensitive compound that produces a catalyst and an autocatalytic compound and deposits other layers of the same composition later in the method ("depositing a layer as in b"); and Group VI also requires a photosensitive compound that produces a catalyst and an autocatalytic compound but deposits other layers of protecting groups ("depositing a layer as in a") later in the method.

9. For Groups V, XI and XII: Group V requires a catalyst system, a catalyst scavenger, irradiating and initiating a catalytic reaction steps; Group XI requires coating a surface with a photobleachable compound, irradiating to bleach and removal steps and recoating the surface with the same composition later in the method; and Group XII requires coating a surface with a photobleachable compound and additionally requires a second surface comprising a photobleachable compound and further stripping and recoating and/or third surface.

10. Finally for Groups VII, VIII, XIII and XIV: Group VII requires coating a surface with a photobleachable compound and irradiating to bleach; Group VIII requires coating a surface with a photobleachable compound and additionally requires a second surface comprising a photobleachable compound; Group XIII requires the use of a sensitizer and requires coating a surface with a photobleachable compound and irradiating to bleach; and Group XIV requires the use of a sensitizer and requires coating a surface with a

photobleachable compound and additionally requires a second surface comprising a photobleachable compound.

11. Also, it is noted that for the two sub-groupings that are drawn to "methods for removing a protective group", the following is noted. Groups I, XV, XVI and XVII are methods for removing a protective group from a synthesis intermediate and involve completely different reagents (and subsequently different steps) than Groups VII, VIII, XIII and XIV, which are drawn to methods for removing a photosensitive protective group from a synthesis intermediate. See descriptions in paragraphs 6 and 10 above.

12. Therefore, the groups that describe these inventions have different issues regarding patentability and enablement, and represent patentably distinct subject matter, which merits separate and burdensome searches. Art anticipating each of the above-identified groups respectively would not necessarily anticipate another group, because they are drawn to different inventions that have different distinguishing features and/or characteristics. Each group could support a separate patent.

13. These inventions have acquired a separate status in the art as shown by their different classification and/or divergent subject matter. Please note that even though some of these groups could be classified in the same class/subclass, this has no effect on the non-patent literature search. The different inventions would require different searches in these databases, and there is no expectation that the searches would be coextensive.

Therefore, this does create an undue search burden, and restriction for examination purposes as indicated is proper.

14. This application contains claims directed to patentably distinct species of the claimed invention for **Groups I – III, VII – XII and XVI**. Election is required as follows.

15. If applicant elects the invention of **Group I**, applicant is required to elect from the following patentably distinct species. Claims 1-3 and 8 are generic.

Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide
- C. Amino acid
- D. Polypeptide

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

16. If applicant elects the invention of **Group II**, applicant is required to elect from the following patentably distinct species. Claims 9-11 and 16 are generic.

Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide
- C. Amino acid
- D. Polypeptide

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

17. If applicant elects the invention of **Group III**, applicant is required to elect from the following patentably distinct species. Claims 17-19 and 25 are generic.

Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide
- C. Amino acid
- D. Polypeptide

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

18. If applicant elects the invention of **Group VII**, applicant is required to elect from the following patentably distinct species. Election of one species from each subgroup below is required. Claim 37 is generic.

Subgroup I: Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide
- C. Amino acid
- D. Polypeptide

Subgroup II: Species of photobleachable dye

Applicant is required to elect one of the below, for purposes of search.

- A. Pyrylium dye
- B. Diazonium dye

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

19. If applicant elects the invention of **Group VIII**, applicant is required to elect from the following patentably distinct species. Election of one species from each subgroup below is required. Claims 38 and 39 are generic.

Subgroup I: Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide
- C. Amino acid
- D. Polypeptide

Subgroup II: Species of photobleachable dye

Applicant is required to elect one of the below, for purposes of search.

- A. Pyrylium dye
- B. Diazonium dye

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

20. If applicant elects the invention of **Group IX**, applicant is required to elect from the following patentably distinct species. Election of one species from each subgroup below is required. Claim 46 is generic.

Subgroup I: Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide

- C. Amino acid
- D. Polypeptide

Subgroup II: Species of photobleachable dye

Applicant is required to elect one of the below, for purposes of search.

- A. Pyrylium dye
- B. Diazonium dye

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

21. If applicant elects the invention of **Group X**, applicant is required to elect from the following patentably distinct species. Election of one species from each subgroup below is required. Claims 47 and 48 are generic.

Subgroup I: Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide
- C. Amino acid
- D. Polypeptide

Subgroup II: Species of photobleachable dye

Applicant is required to elect one of the below, for purposes of search.

- A. Pyrylium dye
- B. Diazonium dye

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

22. If applicant elects the invention of **Group XI**, applicant is required to elect from the following patentably distinct species. Election of one species from each subgroup below is required. Claim 56 is generic.

Subgroup I: Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide
- C. Amino acid
- D. Polypeptide

Subgroup II: Species of photobleachable dye

Applicant is required to elect one of the below, for purposes of search.

- A. Pyrylium dye
- B. Diazonium dye

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

23. If applicant elects the invention of **Group XII**, applicant is required to elect from the following patentably distinct species. Election of one species from each subgroup below is required. Claims 57, 58 and 59 are generic.

Subgroup I: Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide
- C. Amino acid
- D. Polypeptide

Subgroup II: Species of photobleachable dye

Applicant is required to elect one of the below, for purposes of search.

- A. Pyrylium dye
- B. Diazonium dye

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

24. If applicant elects the invention of **Group XVI**, applicant is required to elect from the following patentably distinct species. Claims 70-72 and 77 are generic.

Species of synthesis intermediate

Applicant is required to elect one of the below, for purposes of search.

- A. Nucleotide
- B. Polynucleotide
- C. Amino acid
- D. Polypeptide

The species are distinct, each from the other, because their structures and modes of action are different. They would also differ in their reactivity and the starting materials from which they are made and/or in their specific steps and elements needed for carrying them out. Therefore, the species have different issues regarding patentability and represent patentably distinct subject matter.

25. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

26. Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and *a listing of all claims readable thereon*, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

27. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

28. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

29. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143). Because the above restriction/election requirement is complex, a telephone call to applicants to request an oral election was not made. See MPEP § 812.01.

30. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

31. Applicant is also reminded that a 1 - month (not less than 30 days) shortened statutory period will be set for response when a written requirement is made without an action on the merits. This period may be extended under the provisions of 37 CFR 1.136(a). Such action will not be an "action on the merits" for purposes of the second action final program, see MPEP 809.02(a).

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maurie Garcia Baker, Ph.D. whose telephone number is (703) 308-0065. The examiner can normally be reached on Monday-Thursday from 9:00 to 6:30 and alternate Fridays.

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang, can be reached at (703) 306- 3217. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Maurie Garcia Baker, Ph.D.
December 13, 2002



MAURIE GARCIA BAKER, Ph.D.
PATENT EXAMINER